

Distributed Earth Science Observation Planning and Scheduling (DESOPS) System Code 583 / Terri Wood





Goals, Objectives, Benefits

- No planning infrastructure exists to enable the coordination of observations for Earth observing satellites.
- ARC formed a collaboration w/GSFC planning and scheduling personnel along with EOS PM mission operations personnel to develop software infrastructure (DESOPS) to address problems with coordinated scheduling
 - Mission observation scheduling coordinated by humans
 - Variability in mission management software infrastructure
 - Data format differences
 - Mission management culture differences



- ARC defined science campaign requests and developed planning and scheduling algorithms
 - Specified campaigns for observations
 - Represented campaigns as a sequence of events
 - Developed flexible/temporal planner algorithm to represent science campaign plan
 - Developed algorithm to execute a plan or replan
 - Designed Constellation Model



Code 583 / Terri Wood

- GSFC integrated flexible planning algorithms from ARC into AMPS scheduling application framework
 - Plug and Play framework enables different scheduling applications to be attached.
 - Plan Database stores and enables flexible representation of campaign plans via database management.
 - Constellation model represents problem domain in an object-oriented fashion.
 - User Interface displays plan state information and region of interest graphically.
- Request manager interfaces to missions to send Planning and Scheduling (DESOPS) System

 Request manager interfaces to missions to send evaluate responses.



Results, Status, Next Steps

- Developed individual system components, and will integrate components to provide basic-end-to-end functionality
 - User Interface, Planner, Plan Database, Request Manager, Constellation Model
- Next Steps:
 - Gather and incorporate Science/Operations Feedback.
 - Collaborate with EOS PM mission customers to test/validate the DESOPS concepts in a multisatellite mission operational setting.